REMARKS

The Official Action mailed March 7, 2000 has been received and its contents carefully noted. Claims 1-33 were pending in the present application prior to the above amendments. Claims 20 and 25 have been canceled, claims 1, 6, 12, 18, 23, and 29 have been amended, and new claims 34-61 have been added to complete the scope of protection to which Applicants are entitled. Claims 1, 6, 12, 18, 23, 29, 34, 37, 41, 53, 55, and 58 are independent.

Applicants appreciate the personal interview with the undersigned in attendance on May 2, 2000. During the interview, the amendments set forth herein reciting channel doping through an insulating film followed by removal of the insulating film were discussed and it was agreed that the prior art of record fails to disclose this feature of the present invention. Accordingly, it is respectfully submitted that the present application is in condition for allowance and favorable reconsideration is requested.

As noted during the interview, the present invention is directed to a method for fabricating a semiconductor device wherein a protective layer is formed over a semiconductor film, an impurity such as boron is introduced into the semiconductor film through the protective layer, the semiconductor film is crystallized, and the protective film is removed. Additionally, the crystallization can be conducted using a laser beam irradiated through the protective layer as described in the specification on pages 10-11.

As noted during the interview, the above noted process is particularly advantageous to realize a semiconductor device having enhanced electrical characteristics. With reference to Exhibit A (a copy of which was provided during the interview), the impurity concentration of boron, for example, is higher near the surface of a material into which the boron is implanted. This is illustrated in the top figure shown in Exhibit A. In the next figure, where boron is implanted into a semiconductor layer, such as silicon, the same concentration profile is realized wherein a higher concentration of boron is found near the surface of the silicon layer, and the concentration decreases through the silicon film. The higher concentration at the surface of the silicon film, however, degrades the performance of the resulting device. Thus, in accordance with the present invention, a protective layer of silicon oxide, for example, is formed over a semiconductor layer prior to the implantation of impurities as shown in the figure on the bottom left of Exhibit A. Subsequently, the protective layer is

removed, resulting in a semiconductor layer having an impurity concentration profile as shown in the figure on the bottom right of Exhibit A, which profile is desirable for a semiconductor device.

Furthermore, in accordance with the present invention, the protective layer used during the impurity implantation process is removed and a further gate insulating film is formed for use in the device. In accordance with the present invention, the protective layer is not used as a gate insulating film since the presence of boron will reduce the breakdown voltage between the channel and gate electrode, thus degrading device performance.

As agreed during the interview, none of the references of record disclose or suggest this feature, which is now recited in each independent claim and favorable reconsideration is requested. If the Examiner feels that any further discussions would expedite the prosecution of this matter, he is invited to contact the undersigned.

Respectfully submitted,

NIXON PEABODY LLP

By: _____

Eric J. Robinson
Registration No.: 38,285

EJR:*mmc*

8180 Greensboro Drive
Suite 800
McLean, Virginia 22102
Telephone: (703) 790-9110